the reACT$_2$ant

The Newsletter of the Associated Chemistry Teachers of Texas

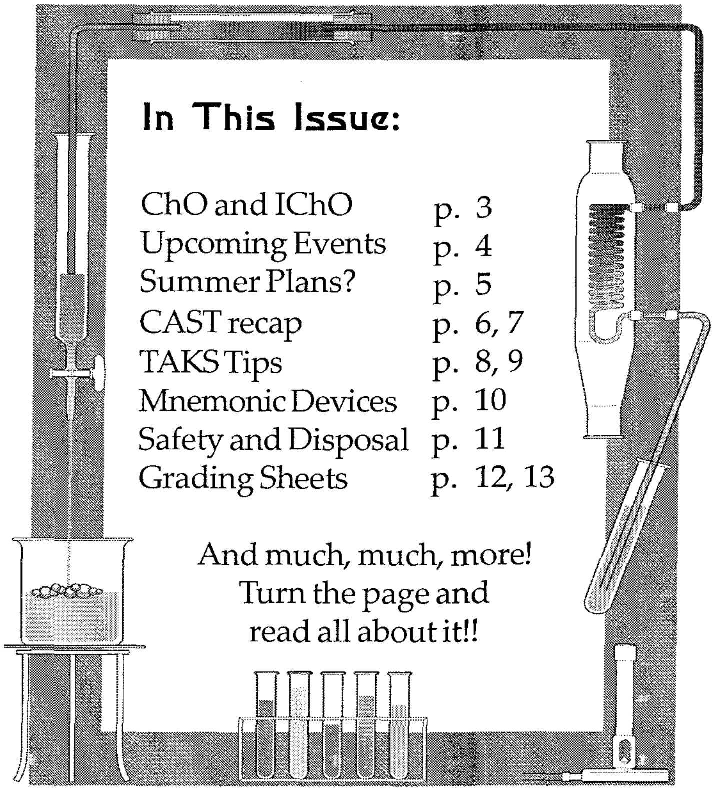
Will we weather the winter?

by
Jane Smith

What a strange year this has been. I am struck by how much those ancient elements - fire, wind, and water have affected the fourth, earth. Tsunamis and earthquakes wreaked havoc on countries that seemed far away, only to be followed by nature's awesome force during the extended hurricane season. In Texas, we welcomed the flood of Katrina's evacuees only to respond to Rita's wake. We wondered if CAST would be cancelled because of housing issues. Now, the drought has brought the fear of combustion reactions at their worst with the prevalence of grass fires.

Such a strangely warm winter and the effects of weather we can't control remind me to be grateful for how lucky I am. It also reminds me of how out-of-control many of our students' lives are. It seems that our students come to school with many more issues than I ever faced: poverty, violence, abuse, homelessness, depression, ADHD - just to name a few. I recently read Robert J. Marzano's *Classroom Management that Works* and was struck by the statement that "The director of the Center of Demographics Policy estimates that 40 percent of young people are at risk of failure in school because of serious problems ouside of school (Adelman & Taylor, 2002).“ In the midst of preparing for TAKS and mastering the chemical concepts that we all love, we have to remember that for many students, especially our most difficult ones, school may be their only personal haven. That also means we have to continue to be vigilant of the legislation and requirements that emerge from our National and State government agencies that *should* promote what is best for kids.

In this issue, I've reproduced (by request) the grading sheet idea that Norma Ashburn shared at our Biennial in Belton. Because I grade on a point system, I tried to extend grades (partially successfully) to zero. You can visit both past (CAST and Roxie's trip to the IChO) and future (NSTA, SWARM, BCCE, CAST 2006, and ChemEd07). Hopefully you can find something to help with the here and now, too!



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And much, much, more!
Turn the page and
read all about it!!

President's Corner

The UT football team has just won the National Championship and everything is colored burnt orange in Texas. You can't blame them for celebrating, thirty - eight years is a long time to wait between championships, but then most schools have never won a National Championship. The fall semester seemed as if it was only two months long and was uneventful unless you count the three extra sessions by the legislature. Pray for better results from our representatives in Austin.

For those teachers that attended CAST at Houston, I believe we can say "they had a good time." The ACT$_2$ booth was always busy with our marbleizing demonstration (shaving cream and food coloring), and there were many items for members to purchase, and free handouts for potential members. Over a hundred people came to the luncheon and heard "Remember the Good Old Days before Computers." We were taken down "memory lane" of how analogies were used to extend the teaching concepts before computers spoiled our students' imagination.

"Where have all our members gone?" Our membership is at the lowest it has been in years. I know some have retired, or have been ill. However, it concerns me that our membership is so small. As of October we only had about 400 active members, which is half the numbers of past years. Find one colleague and discuss the positive points of being an ACT$_2$ member. We will give an update on ChemEd 07 in the spring issue of "The reACTant."

Dale Moore

Treasurer's Report

1/15/06
by Rosendo Garcia

Opening Balance	***$3538.87***
Income	
Interest	$1.06
Deposit	$1162.25
Dues	$670.00
Silent Auction	$623.50
CAST Income	978.00
Total Income	**$3434.81**
Expenses	
reACTant	$569.91
CAST	$1216.07
Total Expenses	**$1785.98**
Ending Balance	**5184.70**
Actinium Fund	*$281.00*
CAST collection	*471.00*
	Total $752.00

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the reACTant Volume 13, Number 2 *The reACTant is the official newsletter of the Associated Chemistry Teachers of Texas (ACT$_2$) and is published three times a year. The information published is copywrited to ACT$_2$ unless otherwise noted. Permission is granted to teachers to reproduce for classroom use. All others should contact ACT$_2$.*

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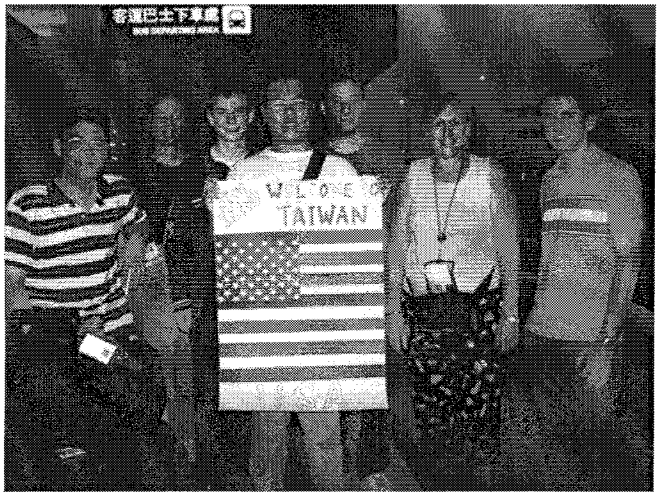
International Chemistry Olympiad

by Roxie Allen,
St. John's School,
Houston



Here is yet another installation of "what I did on my summer vacation." You may have read last fall's article where I explained how I got involved in the American Chemical Society's International Chemistry Olympiad program. This was my second year to serve as a mentor for the United States team. Once again twenty of the brightest young minds in chemistry gathered at the Air Force Academy for two weeks of solid chemistry: lecture from 8-12, labs from 1-5, with studying during most of the free time. Believe it or not, we had students take their PChem book to the amusement park! Three theoretical exams and three practical exams later, we had the team whittled down to four: Jacob Sanders of New Jersey, Scott Rabin of Florida, Nick Sofreniew of Los Angeles, and Allen Cheng, also of Los Angeles. All of us returned home for a brief respite from chemistry where I, for one, got to play with my kids and swim. I actually heard that Nick, Jacob, Scott, and Allen studied and performed even more labs at various ACS member labs. Wow, talk about dedication.

In mid July, I boarded an airplane at 9:00 on Wednesday the 13th. I arrived in LA at what must be the busiest, most confusing airport, at midnight. Meeting up with the travel team, including the head mentor Nadine Szczepanski, we headed over to Taipei, Taiwan on Eva Airways. Departing there at 1:00AM on the 14th, we flew for twelve hours and arrived at 4:30 AM on the 15th. Go figure. Mentors went to the Grand Hotel, a traditional Chinese hotel which was very luxurious. Students headed to dorms at a local hotel. All of us spent Friday sightseeing and trying hard to stay awake so we could adjust to the local time zone. Saturday the mentors from all sixty countries present at the IChO headed to a campus for continuing education where we would also stay in dorms. Seems like Mother Nature had a little surprise in store for us as we watched Typhoon Haitant heading straight towards us with a cloud mass larger than the whole island of Taiwan. We spent much of the next few days discussing the theoretical exam and lab practical proposed by the Taiwanese hosts, finally agreeing on the accepted English version. The mentors from most of the other countries hurriedly translated the exams to their own languages, while we went sightseeing in the rain! Good thing the official language of the Olympiad is English! The typhoon hit, but it luckily did little damage, just lots of rain. The rivers were all full, so I suppose the country is well prepared for the potential of flooding. The sun came back out and we ventured out for much more sightseeing. After ten days, we gathered again with the students and celebrated as they were awarded their medals and recognition. The US team did well, with Scott earning a bronze medal and Nick, Jake, and Allen all earning silver. We were quite proud of our guys! We headed home pleased and full of wonderful seafood and Taiwanese delights! The pictures show the guys with their medals and me with mentors from many countries after the closing ceremony.

Just a final note to dispel the notion that I taught them anything, I didn't! But I sure had fun and learned lots. As I said last year, this was the most significant professional growth experience I have ever had in twenty one years of teaching. You can have it too! ACS is currently soliciting applications for a college mentor to serve from 2007-2009. Next fall they'll be gearing up to hire a high school teachers again. Will it be you?

Celebrate Science Everyday!

Why not explore Today in Science History?

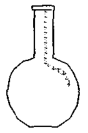
http://www.todayinsci.com

by Dr. Jim Marshall
University of North Texas

Phosphorus

A 17th century alchemist and physician, Hennig Brand learned how to extract a waxy, white substance from urine that glowed in the dark! Soon many chemists were preparing, studying and displaying the mysterious substance. Soon phosphorus was found not only in urine, but in other animal and vegetable matter; in the 1700s, bones were discovered to consist of "lime saturated with phosphoric acid." Before the true nature of combustion was understood, phosphorus was considered an "escape of phlogiston." It was observed that white phosphorus, when exposed to light, is transformed into red phosphorus. Berzelius showed that the two forms were modifications of the same element. In the 1800's phosphorus was used in matches.

Phosphorus is found in minerals in the form of phosphates, and in living systems in protoplasm (in nucleic acids) and bones (as hydroxyapatite). White phosphous ignites spontaneously in the air and is stored under water, but red phosphorus is safer. Phosphates are used extensively as fertilizers. Monosodium phosphate is used in baking powder. Trisodium phosphate is used as a cleaning agent, water softener, and corrosion inhibitor.



P **15**
[Gr. *phosphoros*, light bearing]
discovered 1669
mp (white)280 K

Discovery of the Elements, by Dr. Jim Marshall of UNT

Collegial Chemistry 2006

NSTA National Conference

Anaheim, CA
April 4-9, 2006

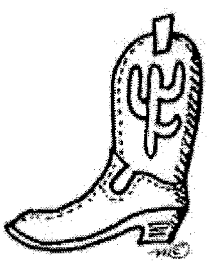
Science, The Universal Language
http://www.nsta.org/conventions
Early Bird Registration through 2/17/2006

Southwest Regional ACS Meeting

Houston
October 19-22, 2006

Nano Scale Giga Vision

http://www.chem.uh.edu/swrm06



CAST 2006

Wichita Falls
November 9-11

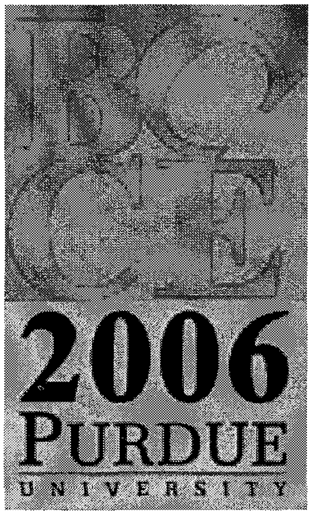
Brainteasers

DigeHClstion	**I** **IC**

From Science Plexers, Seymour Publications

It is never too soon for summer!

by js



The 19th Biennial Conference on Chemical Education
July 30 - August 3, 2006

The Bridge Between Teaching and Learning

The program for the 19th BCCE will present a wide variety of workshops, presentations, plenary speakers, keynote speakers, exhibits, and posters, each of which is designed to provide you with new ideas, strategies, and techniques for involving your students in active learning. We are certain you will find activities that will stimulate your interests.

http://www.chem.purdue.edu/bcce/index.html

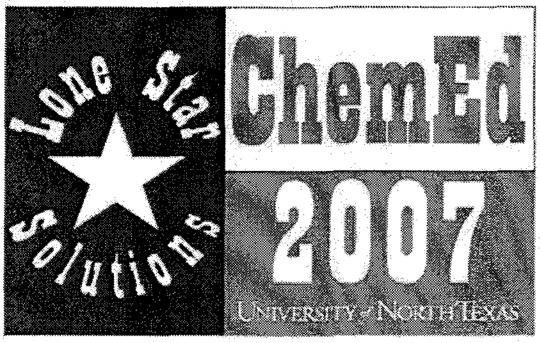
Sponsor: The Division of Chemical Education of the American Chemical Society
Host: The Department of Chemistry,Purdue University, West Lafayette, IN

ChemEd07: Lone Star Solutions
19th International Conference

28 July, 2007 - 2 August, 2007

http://www.chem.unt.edu/chemed07

Consider joining us at a great Texas-sized conference for anyone teaching chemistry. Its appeal is far reaching and is for everyone including family members of all ages. The program will include a wide variety of keynote speakers, workshops, exhibits and lots of fun! Want to help? Email Dr. Diana Mason at dmason@unt.edu



Did you know??

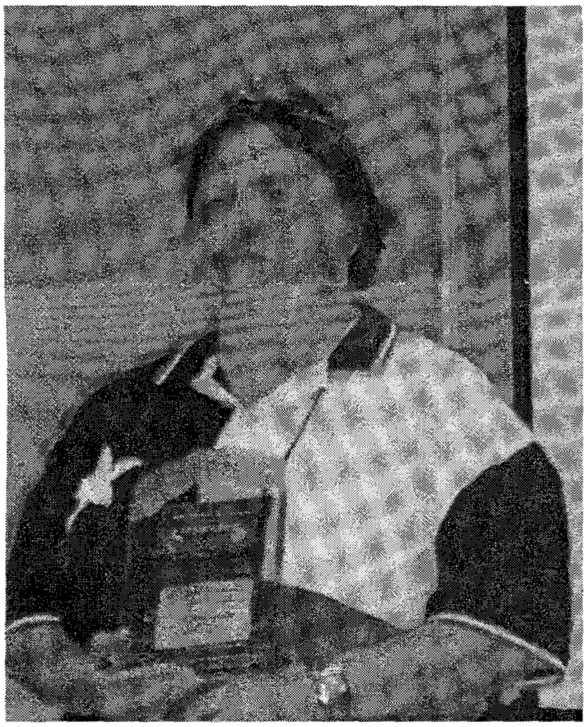
You can access presentations from ChemEd2005 by visiting http://nobel.scas.bcit.ca/chemed2005 and clicking on the Trading Post

by js

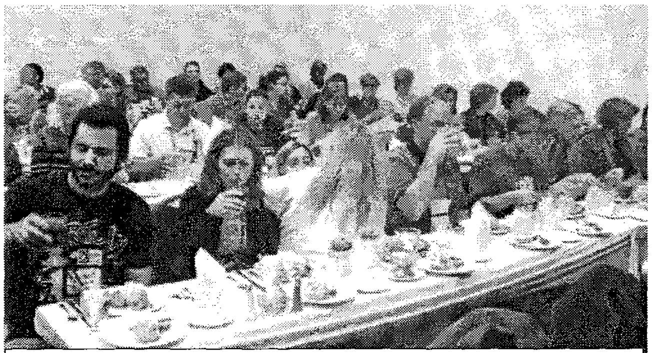
CAST 2005 ACT$_2$ Presents...

With over 100 in attendance, the ACT$_2$ luncheon at CAST was as popular as always. Special luncheon guests included Mickey Sarquis and Lynn Hogue, our dynamic speakers from Terrific Science. They shared analogies and models for making chemistry less abstract and more visual. Their entire luncheon presentation can be viewed at their website http://www.terrificscience.org/freeresources/presentations/index.jsp You can also find documents for many of the demos and activities they shared in their workshop. Mickey and Lynn were dumbfounded by the abundance of door prizes awarded to attendees; Hayden-MacNeil Publishers was especially generous

Melissa Jones from Connally High School in Pflugerville received the George R. Hague, Jr. Award for Teaching Excellence. After teaching all levels of Chemistry at Georgetown High School for many years, Melissa was recruited by Pflugerville as a lead science teacher for the district. Her responsibilities include working with PreAP and AP teachers throughout the district and still keeping her feet wet in the classroom with her AP Chemistry classes. Melissa has been an enthusiastic member of ACT$_2$ since her first Biennial Conference in Dallas in 1989. Her contributions to ACT$_2$ are numerous - from serving a complete 6 year presidential cycle to sharing in countless workshops. Her husband, fireman Randy, was on hand to witness the presentation of the plaque and tiara. Congratulationtions, Melissa!



Hydrophobic? Hydrophilic?
It's all sand to me!



Packed like sardines - but not too busy to eat and learn!

ACT$_2$ sponsored a day of chemistry workshops and a Share-a-Thon.

From the Share-a-Thon

by js

- You can get a copy of the classic BBC film Periodic Table: The Elements Organized from Michael Mueller Productions 173 Marian Anderson Hot Springs, AR 71913 The cost of the DVD is $20 and it is awesome. Lots of on-camera demos including alkali metals in water all the way through cesium, balloons filled with noble gases and many more to illustrate periodicity.

- A discussion of conveying the concept of average atomic mass prompted some to suggest that film canisters stocked with 1 gram samples of paper clips, jellybeans or M & Ms might help. Also, the tickets used to claim prizes at places like Chuck E Cheese may have a calculated standard ticket mass even thought no ticket actually weighs that calculated amount due to tearing, uneven edges, etc.

- Paul Price, from Trinity Valley in Ft. Worth, said he likes to use the *Annals of Improbable Research* (look at Half Price or on Amazon for used copies) to have students analyze descriptions of experiments for the scientific method.

Peck Honored with Skoog Cup!!

For teachers involved in Chemistry and Physical Science, it comes as no surprise to have Dr. Larry Peck from Texas A & M recognized for his contributions to science educators in Texas. From developing innovative instructional materials to sponsoring workshops Dr. Peck has continually found new ways to reach out and help teachers improve their teaching strategies and his efforts have earned the respect of his colleagues and the admiration of high school teachers. His love of science has inspired many to embrace hands-on, inquiry methods to motivate students. He has helped many teachers make their own burning book and no one can top his thermite balls! Congratulations, Larry - we miss you already.

Dr. Larry Peck receiving the Skoog Cup - it's silver - what could be better for a chemical trophy for a retiring A & M professor!

The ladies come out of the closet with Dr. Peck and their Burning Books

The Skoog Cup, sponsored by Texas Tech and STAT, is awarded to a university faculty member who has demonstrated significant contributions and leadership in the development of K-12 science education.

TAKS Attack

by js

Well, I guess you private school folks get to skip this page. Those of us in the public school trenches have joined the ranks of the English and Math teachers who have come before us with the bulwark that is TAKS. Here are some resources that might be useful as you work to help prepare your students for TAKS. If you have found other websites or useful publications, please share them with me (act2smith@mindspring.com) and I'll put them in the Spring issue.

The state decided not to release the 2005 Spring and July tests in order to save money. You can, however, find previously released tests at http://www.tea.state.tx.us/student.assessment/resources/release/taks/

(Did you know that you can copy portions of a .pdf document that you select? Click on the camera icon, place the resulting cross hair cursor on the document and hold the left mouse button down while you drag to select the text/graphic. When you let go - what you selected will be on your clipboard and you can paste it into a document of your choosing. You can also search within a .pdf document for key words by clicking on the binoculars icon and then entering a key word or phrase in the box that pops up. The search will return a list of places where the key word appears.)

The University of Texas has a site where students can take two practice tests, receive immediate feedback and even access personalized tutorials. The intial visit to the site will require that students create an account as well as check their computer for the required plug-ins. Once they are in, students will easily be able to navigate the site for diagnostics and help on all four TAKS subjects. I have made a document to lead students through the login process and a sheet to record their results on the practice tests. Email me if you would like a copy.

Rhonda Alexander, our new President-Elect, has created an amazing TAKS Prep page at http://www.roomd116.com Click on "Science TAKS." Not only does she provide notes to assist with tutorials but she has created and found some terrific interactive practice. For many topics, she has provided links to informational sites. She also has links to some other outstanding TAKS websites. She gives permission for other to link to her website, but she asks that no one blatently copies her work and passes it off as his own!

Spring Branch ISD has posted TAKS information in both English and Spanish at http://www.springbranchisd.com/instruc/taks/taksindex.htm They also have a few practice items students can look at with the answers.

Spring High School has put together some nice powerpoints to review Objectives 1 - 5. http://classroom.springisd.org/webs/scitaks/home.htm This might be a good tool to use with students or perhaps to brush up on your Biology or Physics knowledge.

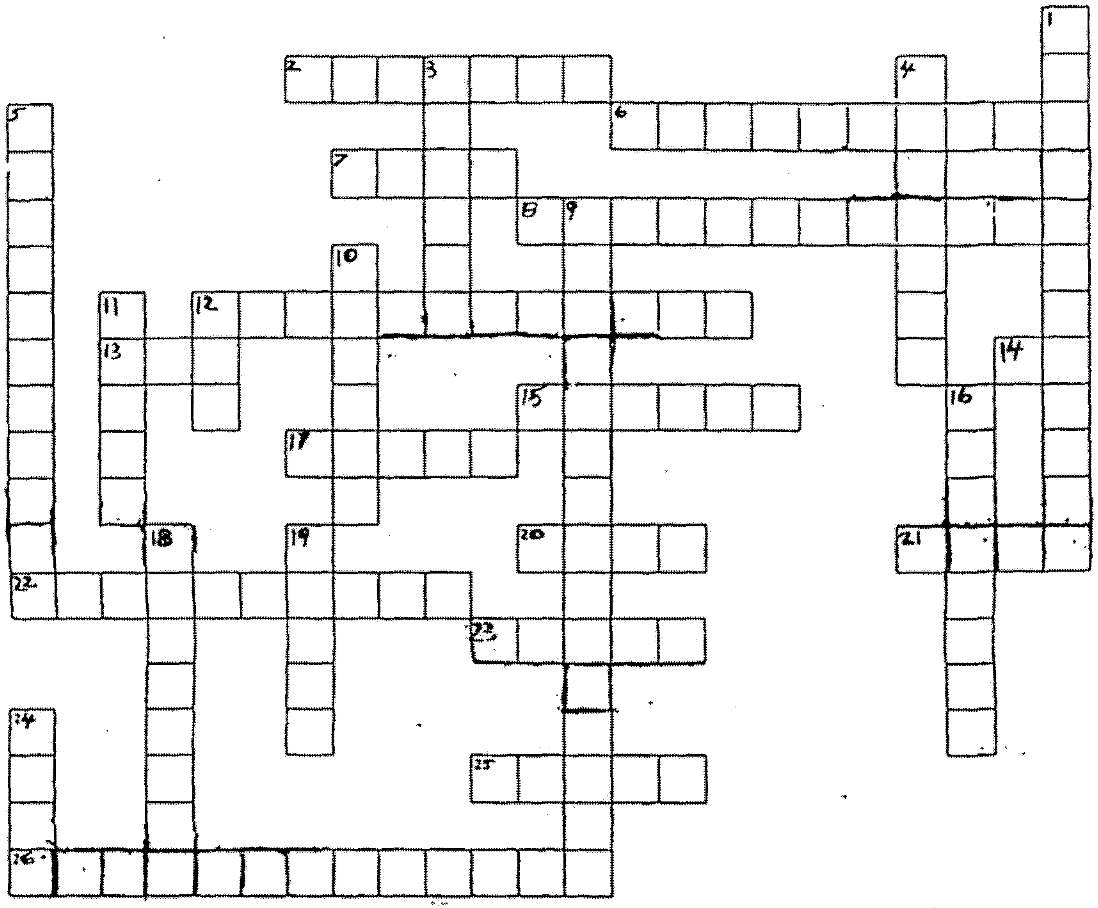
McGraw Hill's *Biology: The Dynamics of Life* has a textbook site (http://www.glencoe.com/sec/science/biology/bio2004/standardizedtest/index.php) that includes interactive practice for standardized testing.

TAKS Attack

by Lisa Klein
Northwest ISD

This puzzle comes from Lisa Klein which she shared in Denton this summer. It offers a "fun" way for your student to explore the TAKS science formula chart

TAKS Crossword



ACROSS

2 9.8 m/sec/sec
6 voltage/current
7 Unit for voltage
8 343 m/sec
12 change in velocity/change in time
13 Unit of resistance
14 1 cubic centimeter
15 power x time
17 newton meter
20 J/sec or Nm/sec
21 mass x change in temp x specific heat
22 output/input x 100
23 distance/time
25 mass x acceleration
26 half the mass x speed squared

DOWN

1 c, 300000000 m/sec
3 mass/density
4 4.18 joules
5 1000 calories
9 mass x gravity x height
10 Unit of Force, kgm/sec2
11 voltage x current
12 Unit for current
16 mass x velocity
18 work/force
19 wave/second
24 power x time

Chemistry Mnemonic Devices

by Todd Abronowitz
John Paul II High School

Todd Abronowitz, at John Paul II High School in Plano, has been collecting memory devices from teachers in Texas and Arkansas to help students learn chemical concepts. Here are but a few. He is interested in adding to his collection if you have any to share. Email him at ToddAbronowitzjohnpauliihs.org You can also find more mnemonics on the ACT_2 website.

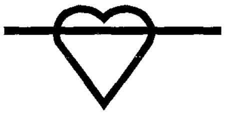
General

DRY MIX... Dependent responding (VARIABLE) Y (axis)
Manipulative independent (VARIABLE) X (axis)

Alphabetical hint... ATW... acid to water.
Also A & W Root Beer bottle is a good mnemonic device to get the students to remember *A*cid into *W*ater

Density

A variation on the density circle is to say that "density is the heart of chemistry" and then draw a heart. Then draw a line across it and you have the formula for density. The shape looks like a fancy "m" divided by a big "V"



Types of formulas

Molecular formula and empirical formula: have students say the alphabet and number the letters. E is a "lower" letter than "m" is, so the empirical formula must be the lowest whole number ratio.

For remembering how to calculate an empirical formula:

Percent to mass, mass to mole, divide by small, multiply 'til whole.

Redox reactions

LEO the lion goes GER!
Loss of Electrons Oxidation
Gain of Electrons Reduction

OIL RIG
Oxidation Is Lose
Reduction Is Gain

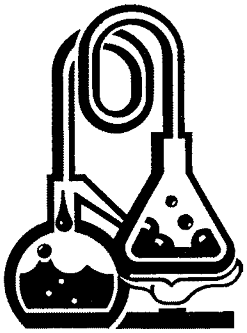
Olé
Oxidation is Loss of Electrons

Oxidizing and reducing agents

Think of a travel agent - they help you plan the trip, but they don't take it with you!

Safety and Disposal

by js



I came across this document when I was cleaning up my files. It evidently was an appendix in some sort of book, but it no longer has the source information. (If anyone recognizes it, please send the information to me so that I can credit appropriately.) Although the Flinn catalog has an excellent section on disposal procedures, I thought these brief guidelines might be helpful for posting in a stockroom or as a reminder when you are preparing a new lab or demo. The procedures follow the recommendations of the Chemical Manufacturers Association, as published in their "Laboratory Waste Disposal Manual."

General Guidelines for Chemical Waste Disposal

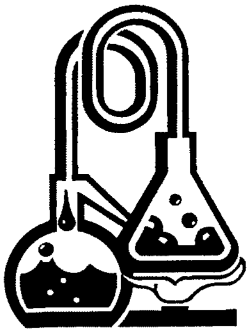
Neutralize acids with ammonium hydroxide or sodium hydroxide and flush down the drain.

Neutralize bases with acetic acid or dilute hydrochloric acid and flush down the drain.

Dissolve inorganic salts in water, neutralize with sodium bicarbonate, and flush down the drain.

Allow volatile organic solvents to evaporate in a fume hood, or burn then in an open fire in a safe area.

Place solids in the waste containers, or burn them in an open fire.



Number	**Element Symbol**	**Electron Configuration**	**Molar Mass 1**	**Molar Mass 2**
50	Sn	$5p^2$	CH3Cl	LiBO2
51	Sb	$5p^3$	ClO $^{1-}$	NH4HS
52	Te	$5p^4$	CH2F2	C2N2
53	I	$5p^5$	B4H10	LiNO2
54	Xe	$5p^6$	ClF	NH4Cl
55	Cs	$6s^1$	Be3N2	
56	Ba	$6s^2$	B(CH3)3	MgS
57	La	$5d^1$	C3H7N	
58	Ce	$4f^1$	AlP	Mg(OH)2
59	Pr	$4f^2$	(CH3)3N	CNH(NH2)2
60	Nd	$4f^3$	CO3 $^{2-}$	CO(NH2)2
61	Pm	$4f^4$	HCO3	CH3NO2
62	Sm	$4f^5$	H3BO3	MgF2
63	Eu	$4f^6$	HNO3	
64	Gd	$4f^7$	NH4NO2	
65	Tb	$4f^8$	C2H5Cl	NOCl
66	Dy	$4f^9$	COF2	CH3CHF2
67	Ho	$4f^{10}$	ClO2 $^{1-}$	
68	Er	$4f^{11}$	BF3	HClO2
69	Tm	$4f^{12}$	BeCO3	
70	Yb	$4f^{13}$	B2O3	CHF3
71	Lu	$4f^{14}$	MnO	NF3
72	Hf	$5d^2$	FeO	CaO2
73	Ta	$5d^3$	CH3SCN	
74	W	$5d^4$	Ca(OH)2	
75	Re	$5d^5$	CoO	C2H5NO2
76	Os	$5d^6$	NH4SCN	N2O3
77	Ir	$5d^7$	GeH4	NH4BO3
78	Pt	$5d^8$	C6H6	Al(OH)3
79	Au	$5d^9$	C5H5N	NH4HCO3
80	Hg	$5d^{10}$	SO3	BeCl2
81	Tl	$6p^1$	HBr	CH2ClCH2OH
82	Pb	$6p^2$	H2SO3	H3PO3
83	Bi	$6p^3$	CuF	GaN
84	Po	$6p^4$	NaHCO3	BClF2
85	At	$6p^5$	KNO2	CH2Cl2
86	Rn	$6p^6$	CHClF2	COFCl
87	Fr	$7s^1$	LiBr	
88	Ra	$7s^2$	CF4	C2O4 $^{2-}$
89	Ac	$6d^1$		
90	Th	$5f^1$	Fe(OH)2	
91	Pa	$5f^2$		
92	U	$5f^3$	N2O4	Ca(CN)2
93	Np	$5f^4$	Co(OH)2	Ni(OH)2
94	Pu	$5f^5$	K2O	
95	Am	$5f^6$	MgCl2	
96	Cm	$5f^7$	(NH4)2CO3	
97	Bk	$5f^8$	NiF2	
98	Cf	$5f^9$	H2SO4	B(C2H5)3
99	Es	$5f^{10}$	C2H4Cl2	COCl2
100	Fm	$5f^{11}$	CaCO3	HClO4

Number	Element Symbol	Electron Configuration	Molar Mass1	Molar Mass 2
1	H	$1s^1$	H	
2	He	$1s^2$		
3	Li	$2s^1$		
4	Be	$2s^2$	He	
5	B	$2p^1$		
6	C	$2p^2$		
7	N	$2p^3$	Li	
8	O	$2p^4$	LiH	
9	F	$2p^5$	Be	
10	Ne	$2p^6$		
11	Na	$3s^1$	B	
12	Mg	$3s^2$	C	
13	Al	$3p^1$		
14	Si	$3p^2$	N	
15	P	$3p^3$		
16	S	$3p^4$	CH4	O
17	Cl	$3p^5$	OH^{1-}	
18	Ar	$3p^6$	H2O	NH4
19	K	$4s^1$	F	
20	Ca	$4s^2$	HF	Ne
21	Sc	$3d^1$		
22	Ti	$3d^2$		
23	V	$3d^3$	Na	
24	Cr	$3d^4$	NaH	LiOH
25	Mn	$3d^5$	BeO	
26	Fe	$3d^6$	LiF	CN^{1-}
27	Co	$3d^7$	HCN	Al
28	Ni	$3d^8$	N2	CO
29	Cu	$3d^9$		
30	Zn	$3d^{10}$	C2H6	HCHO
31	Ga	$4p^1$	P	CH3NH2
32	Ge	$4p^2$	O2	SiH4
33	As	4p3		
34	Se	$4p^4$	H2S	CH3F
35	Br	$4p^5$		
36	Kr	$4p^6$	Cl	
37	Rb	$5s^1$	HCl	
38	Sr	$5s^2$	F2	
39	Y	$4d^1$	Li2O	K
40	Zr	$4d^2$	MgO	NaOH
41	Nb	$4d^3$		
42	Mo	$4d^4$		
43	Tc	$4d^5$	LiCl	
44	Rn	$4d^6$	CO2	N2O
45	Rh	$4d^7$	Sc	
46	Pd	$4d^8$	NO2	HCOOH
47	Ag	$4d^9$		
48	Cd	$4d^{10}$	O3	Ti
49	In	$5p^1$		

by js

Expand Your Science Horizons

I thought I would share some of my favorite non-textbooks that I have accumulated through the years. With the growing emphasis on content literacy and reading and writing across the curriculum, it's nice to have some resources to draw from. Also, as part of the NSTA chemistry list serve, I have noticed that teachers are often looking for sources of reading for their students. Although none of these books are ones that I would assign to be read completely by my students, they certainly offer some terrific possibilities for excerpts.

Molecules At An Exhibition by John Emsley; Oxford Publishing; 1998

Arranged as though you are walking through 8 galleries of chemicals, Emsley provides brief and very intriguing information about many of the chemicals around us. Examples range from "the worst smell in the world" – methyl mercaptan to "nasty habit" – nicotine to "bang, you're not dead" – sodium azide. Emsley's presentations are not only chock full of historical tidbits regarding substances we use every day but they also reveal some aspects that I had never heard. Although the book is written from a British perspective, you definitely don't have to be a rocket scientist or a chemist to enjoy and learn from this book.

Exploring Chemical Elements and Their Compounds by David L. Heiserman; McGraw-Hill Publishing; 1992

This is my all time favorite resource for information on chemical elements. It is arranged in order of atomic number and provides solid information on basic physical and chemical properties as well a bit of history and uses. In addition, most of the 2-4 page write-ups include information on preparation or isolation of the element and half-life and decay information on any radioactive isotopes.

1,001 Chemicals in Everyday Products by Grace Ross Lewis; Wiley & Sons; 1994

I bought this book two years ago and then promptly forgot I had it. One year when I was having my students do some independent work on acids and bases I rediscovered it and I won't forget it again. The index of this book not only allows you to look up common chemicals but it also lists materials as you would find them on a household label and then cross-references you to the actual chemicals themselves. Although the entries aren't extensive, they do provide chemical names as well as common names, formulas, uses and hazard information. I think this book would allow students to completely digest the information on virtually any household label.

Serendipity: Accidental Discoveries in Science by Royston M. Roberts; Wiley & Sons; 1989

Although not strictly a chemistry book, this is a terrific way to learn about some of the scientific discoveries that come to those with a prepared mind. Many of the examples are chemical in nature – various elements, vulcanization of rubber, nylon, Teflon – but also there is an emphasis on substances we use and take for granted – Velcro, post-its, photographic film. Many of the entries in the book are less than five pages long and I have even been known to conduct a reading circle on occasion (you'd be surprised at how much high school kids enjoy being read to).

Chemical Achievers by Mary Ellen Bowden; Chemical Heritage Foundation; 1997

This book comes from the Chemical Heritage Foundation (a great resource in itself!) It includes short biographies and terrific photographs of 171 chemical achievers ranging from the usual list of historical chemists to leaders in the petrochemical and pharmaceutical industries. For ordering information contact the Chemical Heritage Foundation at 315 Chestnut St. Dept. PC2 Philadelphia, PA 19106-2702 (215) 925-2222 ext. 222. They generally give high school teachers a discount so be sure to ask.

More to come in the Spring including some novels you might enjoy over the summer!

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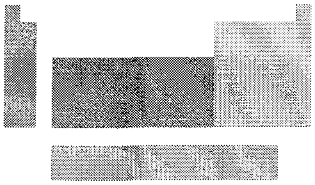

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